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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,522	06/07/2001	Charles Cohn	COHN 9	9236

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EXAMINER

MUTSCHLER, BRIAN L

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 10/21/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/876,522

Applicant(s)

COHN, CHARLES

Examiner

Brian L. Mutschler

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-15, in Paper No. 3 is acknowledged.

***Specification***

2. The disclosure is objected to because of the following informalities:
  - a. In line 1 of paragraph [0009] on page 5, please change "provides, a substrate" to --provides a substrate--;
  - b. In line 4 of paragraph [0021] on page 9, please change "an A sectional" to --a sectional--; and
  - c. In the last line of paragraph [0027] on page 13, please change "Via" to --via--.

Appropriate correction is required.

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: METHOD OF MANUFACTURING A PRINTED WIRING BOARD HAVING A DISCONTINUOUS PLATING LAYER.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 5, 7-9, 12, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Gulla (U.S. Pat. No. 5,262,041).

Regarding claims 1 and 8, Gulla discloses a method for forming electrically connected plating layers 3 on opposing sides of a printed circuit board in a multi-layered integrated circuit (col. 5, lines 9-19; fig. 2). A contact layer 5 is electroplated over the plating layers 3 (col. 7, lines 20-31; fig. 10). A portion of the plating layers 3 is removed while leaving the plating layers under the contact layer 5 (fig. 10).

Regarding claims 2 and 9, Gulla discloses forming the plating layers 3 by an electroless plating step (col. 5, lines 9-24). A conductive layer 7 is formed on the plating layers 3 by electrodeposition (col. 8, lines 44-50).

Regarding claims 5 and 12, the plating layers 3 and the conductive layers 7 are discontinuous (fig. 10).

Regarding claims 7 and 14, a portion of the plating layers 3 on the second side is removed subsequent to electroplating the contact layer 5 (col. 7, line 67 to col. 8, line 2; fig. 9 and 10).

Regarding claim 15, openings are formed in a dielectric layer 4 on both sides and plating includes plating within the vias (fig. 10).

Since Gulla teaches the limitations recited in the instant claims, the reference is deemed to be anticipatory.

6. Claims 1, 6, 8 and 13 are rejected under 35 U.S.C. 102(a) as being anticipated by Bhatt et al. (U.S. Pat. No. 6,162,365).

Regarding claims 1 and 8, Bhatt et al. disclose a method for forming electrically connected plating layers **14** on printed wiring board of a multi-layer integrated circuit (col. 2, line 66 to col. 3, line 13; fig. 1 and 6). A contact layer **70** is formed on the plating layers **14** by electroplating (col. 4, lines 54-53). Portions of the plating layers **14** are removed while leaving portions of the plating layers that are covered by the contact layer **70** (col. 4, lines 31-33; fig. 6).

Regarding claims 6 and 13, portions of the plating layers **14** are removed prior to electroplating the contact layer **70** (col. 4, lines 31-63).

Since Bhatt et al. teach the limitations recited in the instant invention, the reference is deemed to be anticipatory.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 4, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gulla (U.S. Pat. No. 5,262,041) in view of Stern (U.S. Pat. No. 6,015,482).

Gulla teaches a method for fabricating a printed circuit board having the steps recited in claims 1, 2, 5, 7-9, 12, 14 and 15, as explained above in paragraph 5.

The method of Gulla differs from the instant invention because Gulla does not disclose electroplating a barrier layer over the plating layers, as recited in claims 3 and 10, and further does not disclose electroplating a barrier layer of nickel followed by a contact layer of gold, as recited in claims 4 and 11.

Stern discloses a method for manufacturing a printed circuit board wherein a nickel barrier layer is electroplated on a copper, plating layer (col. 3, lines 8-21). A gold contact layer is then electroplated on the nickel barrier layer (col. 3, lines 8-21). A barrier layer of nickel is used to "prevent 'migration' of copper into the electroplated gold...[because] copper reduces the anti-corrosive properties of gold...which is essential to the integrity of printed circuit contacts requiring exposed conductive leads" (col. 3, lines 14-21).

Regarding claims 3 and 10, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Gulla to electroplate a barrier layer over the plating layers as taught by Stern because a barrier layer would prevent the unwanted migration of copper into the contact layer.

Regarding claims 4 and 11, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Gulla to use a nickel barrier layer and a gold contact layer as taught by Stern because nickel provides a good metallic barrier to protect the gold contact layer, which has good anti-corrosive properties.

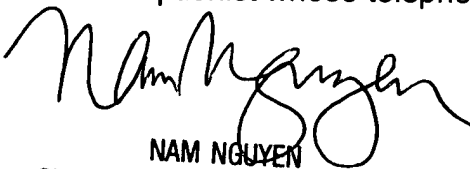
**Conclusion**

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 4,812,213 issued to Barton et al. teaches a method for forming discontinuous layers in an integrated circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (703) 305-0180. The examiner can normally be reached on Monday-Friday from 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

blm  
October 15, 2002